UNITED STATES DEPARTMENT OF THE INTERIOR
National Satellite Land Remote Sensing Data Archive
Advisory Committee Meeting

Minutes of the
Third Meeting of 2-Year Charter (2001-2003)
USGS EROS Data Center
Sioux Falls, SD
May 1-3, 2002

Committee Membership

Academia	
Laboratory researcher-data user:	Dr. Samuel Goward, University of Maryland
Classroom educator-data user:	Dr. Gerald Nelson, University of Illinois
Government	
Federal data user:	Dr. Brad Doorn, USDA/Foreign Agr. Service
Federal data user:	Dr. Darrel Williams, NASA
State/Local data user:	Ms. Amelia Budge, Univ. New Mexico, EDAC
State/Local data user:	Dr. Hugh Bender, Texas Nat'l. Res. Info. Service
Industry	
Data management technologist;	Dr. John S. MacDonald, Chairman, MacDonald-Dettwiler*
Licensed data provider:	Mr. Herb Satterlee, CEO Digital Globe, Inc.
Value-added or other data provider:	Mr. Bob Winokur, President EarthSat
End user:	Mr. Rick Crowsey, Crowsey Inc.
Other	
Non-affiliated individual at-large:	Prof. Joanne Gabrynowicz, University of MS Nat'l Remote Sensing & Space Law Center
Non-government organization:	Mr. Jim Frelk, ECS
International non-U.S. representative:	Dr. Edryd Shaw, Director General, CCRS*
At-large from any sector:	Ms. Kass Green, President, Space Imaging Services
At-large from any sector:	Mr. Daniel Dubno, CBS News
Ex-Officio	
Long-Term Archive	Mr. John Faundeen, USGS
Committee Federal Officer	Mr. Thomas Holm, USGS

*Retired

Record of Committee Meeting Attendance

March 28-30, 2001

Present:

Ms. Amelia Budge
Dr. Kenneth Davidson
Dr. Brad Doorn
Prof. Joanne Gabrynowicz
Dr. Samuel Goward
Ms. Kass Green
Mr. Doug Hall
Mr. Joseph Harroun
Mr. Thomas Holm
Dr. John S. MacDonald
Dr. Gerald Nelson
Dr. Edryd Shaw
Ms. Karen Siderelis

Absent:

Dr. Hugh Bender
Mr. Herb Satterlee
Mr. Darrel Williams

October 24-26, 2001

Present:

Dr. Hugh Bender
Ms. Amelia Budge
Mr. Rick Crowsey
Dr. Brad Doorn
Mr. Daniel Dubno
Mr. James Frelk
Prof. Joanne Gabrynowicz
Dr. Samuel Goward*
Ms. Kass Green
Mr. Thomas Holm
Dr. Gerald Nelson
Mr. Herb Satterlee
Dr. Edryd Shaw
Dr. Darrel Williams
Mr. Robert Winokur

Absent:

Dr. John S. MacDonald

*via telecon

May 1-3, 2002

Present:

Dr. Hugh Bender
Ms. Amelia Budge
Mr. Rick Crowsey
Dr. Kenneth Davidson
Dr. Brad Doorn
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Dr. Samuel Goward
Mr. Thomas Holm
Dr. John S. MacDonald
Dr. Gerald Nelson
Mr. Herb Satterlee
Dr. Edryd Shaw
Dr. Darrel Williams
Mr. Robert Winokur

Absent:

Ms. Kass Green

Day 1 - Wednesday, May 1, 2002

Welcome

Thomas Holm, Acting Chief, EROS Data Center (EDC), U.S. Geological Survey (USGS) opened the meeting and welcomed everyone. Joan Fitzpatrick, Deputy Regional Director for the Central Region, Barb Ryan, Associate Director, Geography, and Barbara Wainman, Chief, Communications, will be addressing the Archive Advisory Committee (AAC) this afternoon.

A key piece of this session is the subgroup on the data sieve. There is a tidal wave of data coming. With a successful Landsat 7 launch, Digital Globe launch, and others there is 1 terabyte of Federal data coming in each day. Aqua launch is May 4, and we will soon be at 3 terabytes per day. We have to concentrate on the content of the Archive. We need solid advice. Landsat 5 is now part of the USGS. We will manage Landsat as a mission. It brings data policy issues to the table. We need to look at the policy for the Archive. We need Landsat policy guidance. We are working toward $50 a scene for Landsat imagery and we need this group's advice on how to go down that path.

A decision memo came out from the USGS Director, Chip Groat that we will get out of the retail sales business by FY 2004. It doesn't mean we will stop distributing data. We will go to a wholesale/retail mode. There are national implications to the Archive. Right now we sell to anyone who walks in the door. In the future that customer would go to our business partners. The NSLRSDA is not exempt from this decision memo.

What about the science issues? This group is extremely important to the USGS and we need your input and advice to help us scope our future.

Review

Joanne Gabrynowicz, co-chair, reviewed the agenda and action items. The papers provided for the action items can be found in the binder provided.

Data Grant Subgroup

We have wanted to do data grants since 1998. It is difficult to get approval. This year, however, it is a budget problem. And, next year it will be even more so. We do not have a path to pursue this activity. The purpose of the grant would be to go beyond the user. The process to get approval is through Bureau regulations. OMB is involved because it involves money. Can we decide something that will make the data available with a limited amount of money? There is no price break on data; it comes out of John's budget. The USGS budget did go down from FY 2001. The Mapping (now Geography) Discipline is most affected.

Do we really want to make data available with our dollars or do something through outreach? We have to be able to pay for all data. We do not have a means of providing "in-kind" data or "free" data. What about pulling out data from requests that come in. Since work is already done these image could be put on an ftp site. There is a one-time cost. What drives the data grant is the availability of data. If this is packaged through outreach it can be named something else. With data grants we are trying to address specific issues. We need 3 to 5 questions that require access to data and solutions to the Committee to address the questions. It could be a research program. Would it be easier to put together a research task for the Archive than to do a data grant? If there is research needed by the Archive could this be set up? We did try to have a dedicated research and were told that we should make use of the research available.

When we talked about data grants we were talking about getting data into the hands of non-traditional users. We need to have Chris Doescher tell us about AmericaView. What we are trying to accomplish is very close to what AmericaView is doing. They are also working on money.

Outreach Subgroup (Jerry Nelson and Dan Dubno)

How do we make it easier to do what we want to do? What about those users that are unaware of the data and how can it be of value to them? Uses of the data - nice image, primary data, combined with others. There is no single approach. New users don't know the potential value. Allocate funding for outreach (not for data), for support, and acquiring of other data sets - elevation data, GIS, land cover, roads, time series, address files. Do we have a list of what is already being done for USGS and who does the education-outreach part? We need to make sure that efforts are not being duplicated. The Archive needs to be involved in on-going efforts.

Make imagery accessible in presentable ways. There is a lot of interest in the digital Earth project. Key Hole package was demonstrated – web based imagery, 3 divisional GIS. Demo completed with View Point software. There are technologies already making data accessible to people so they can use it for whatever they want. The USGS needs to figure out the 5 to 6 companies that offer these software packages and work closely with them to do outreach. It gets the Archive material into peoples' homes. An overlay of data sets, multiple layers of data accessible on a web based system.

Go back to this more functional approach and look at it with a long-term (strategic plan) approach for outreach to get to users. Take advantage of other groups, i.e., NASA and other information partners. Should take advantage of those that are already reaching users. There are space grant universities in every State of the union. The Landsat Remote Sensing Program is where John Faundeen reports to USGS Headquarters.

For FY 2003 the project plan does not include outreach. Would like to have a confirmation from the Committee (or a formal recommendation) to keep outreach on the schedule.

ACTION: Dan Dubno, Jerry Nelson, and Amy Budge will draft a paragraph "this kind of outreach can be engaged in." First need to define the kind of outreach. Question what USGS does as a whole to get to a Land Remote Sensing paper. Need to define the target. Talk about a marketing company for outreach. Need to consider libraries.

Marketing is understanding where your products can be useful. We are talking about the distribution problem. What you are looking for is a way to get into a distribution network. Archive is manufacturing that needs a distribution network. The people looking to use the data are the channel for this data. Where does this type of data have an advantage? There are people that understand these markets. Think hard about who are the people in our society that already service markets where this information can be valuable. If K-12 kids had access to the Keyhole or like software they will help create the market. Maybe part of this recommendation is that the business partners can participate in the activity. Ease of access is a big part of why information isn't out there. Accelerate the process. It needs to be for the public good.

The makers of these data will have an archive that will change. The ease of access will happen. We need to concentrate on getting the information out there. Just put information out there and it will be used. Whatever is done it has to be promoted. How do you promote it? What generation? A business model should be developing business partner relationship and finding users for it. The ease of access is the core of the operation. The upcoming generation will be the one that need and use it. Education is a big part and we need to teach the teachers. We also need to look at applications of the data. Another set of users - those that need to make management decisions. Those in between are the partners. Marketing is very important.

1. Suggest the same pieces of data are thought about and used differently depending on the discipline. This is where the channels come in. These people have the knowledge.
2. Point is educational. What about online courses? That could be a very interesting way to market material to the different groups. Almost all of the data is for the public good. Everybody that has a need is already getting that information. Where can space data replace the current data? There are other ways of getting information.

Does USGS keep a list of customers? Yes. Do you track the customer satisfaction? Yes, "how are we doing" cards. USGS already has a customer base to build on. We do some of this through the business partners. If you think about an organization you need to make sure that you are talking to the right people. You have to build up your relationship with organizations that can help you. There has to be a steady flow of information to these people.

As USGS is a wholesaler then they should be looking to the value added people.

USGS needs a recommendation regarding outreach.

It may not be feasible to get the recommendation at this meeting. It should be due at the next meeting.

ACTION: We have the outreach document that was submitted. A paragraph from each member should be emailed to Jerry and Dan. When we leave this meeting we can get a subgroup to work up more. Whatever is recommended should become a budget initiative for FY 2004.

CEOS Update (John Faundeen)

The Committee on Earth Observation Satellites (CEOS) is an international Committee. The USGS has a 4-year commitment. John Faundeen is currently the Vice-Chair of the CEOS Working Group on Information Systems and Services (WGISS) and will become Chair in November 2003. There is a review going on at the Plenary level for CEOS. WGISS has a test site facility for science products. They are working on an interface for test sites around the world for validating data. They are using many types of remotely sensed data.

DeclassII (John Faundeen)

Declass II is U.S. intelligence photography that is being declassified. This is a smaller project than Declass I. There are only about 50,000 frames. Length of some frames will be a few inches up to 32 feet. Some of the data isn't usable. Data is to come into USGS in August. September 20 is the date scheduled to acknowledge transfer of these data to the world.

Presentations by USGS Personnel

Joan Fitzpatrick, Deputy Regional Director for Central Region, welcomed the Committee and acknowledged their work. Her definition of the archive is "the preservation of the past for the sake of the future." The Committee can play a large role in carrying out preservation of our data.

Barbara Wainman, Chief Communications, works with Congressional relations and media relations in the DC area. There should be a media story on the Archive and what it is and how do we use it and preserve it.

Barb Ryan, Associate Director, Geography, remembers the highlights from last conversation and listening to what the AAC has accomplished. The challenge is middle resolution, land remote sensing. We have suffered from inconsistent distribution,

pricing, etc. We are cooperating with NASA and USDA in working on the continuity of data. We are still technologically in the same mindset where we were in the beginning. The challenge is to partner with the private sector, and business partners. Make the next 30 years different than the past 30 years. How do USGS and USDA take advantage of the expertise on this Committee? Policy issues need to be addressed, including those affecting the commercial market. Where do we want to go with middle resolution test data? Our National policy should help move us in that direction. Landsat data is only one piece of Geospatial data. We need to do a good clear crosscut section of Geospatial data. There is an unprecedented demand for Geospatial data. Is there a priority between USGS and NIMA? NIMA works outside the U.S. and USGS inside. With the climate of the entire country this has changed. We are working with NIMA on Geospatial assurance with many uses. NIMA will need data that has more attributes. All agencies in remote sensing should be looking at this. What is lacking is the coordination at the White House level. Geospatial one-stop is what we are looking at. USGS could be doing a better job under this initiative. We also need to support the private sector.

Middle resolution is one of the issues in the operational communication of this country – needs to be global – until the commitment is made the questions will continue. The U.S. has made a resolve of land observation systems but not at the middle and high resolution to maintain records.

It has to be a broader based system. It is in our best interests to come together to work. We are very concerned by the bureaucrats who want to take away the open access. If people saw a key application it would be on their laptops.

1. We need to make the global coverage available to everybody.
2. Highway system should look at the national income accounts, GNP, GND, and other economic circumstances.

The world has changed rapidly in technology. It is all about information.

Landsat Remote Sensing Program (RJ Thompson)

The Landsat Remote Sensing Program:

1. Explain what we are trying to do with the remote sensing program.
2. How USGS is committed to the land remote sensing program.

The National Map covers Cooperative Topographic Mapping, Landsat Remote Sensing, and Geographic Analysis and Monitoring. User and applications – for some of our products we are moving to a wholesale/retail model. We are looking at the Committee to help with the program. USGS is committed to acquiring, processing, and the application of remote sensing data and technology. Foreign stations have to provide us data in a manner that we can read and process. The U.S. can use raw data and production data.

SRTM (Wayne Miller)

Shuttle Radar Topography Mission (SRTM) where it is and where it is going. A non-U.S. coverage and in private company, the user is being left out. The law started with only the Federal Government getting the data and then their minds were changed.

30m data of U.S. and 90m data of U.S. and non-U.S. – worldwide. (SPOT launches with 5m data that will be available without restrictions.) There was no release of any non-U.S. data. It is research grade data. PI scenes were done first. People continue to logon and download the sample data; have to be new users because the data doesn't change. Data policy – 30m release of data is a foreign policy issue. 30m non-U.S. data will be covered by a separate agreement. 90m data (U.S. and non-U.S.) will have access after 2 years. Entire data set should be done in 2003. NASA will get a copy of the data set – about 2-3 years out. It could be 2008 until a NIMA-provided data set is available. Change detection can be done with the 30m SRTM data. Why do people want 30m data? There is no value for the data set in the Archive. Sounds like it is totally a waste of money. The 90m data is of value – covers 80% of the land areas of the world. Xband on SRTM is not complete coverage. Need to get a consistent comparable data set = the NIMA NASA deal (paid by NASA). It is strategically important to the collection of data.

In terms of the Archive and sieve, take on responsibility for data management before told it will become available to the project. It is a national data set that should be in the public domain. For the Archive, does it make sense to spend resources before we receive the data?

The Archive never gets any dollars from sales. Historically USGS wanted to be part of the mission at the point of $10m in guidance. NSLRSDA is interested in the validated products. Doesn't want the intermediate.

SRTM was a 10-day mission. When NASA and NIMA had early negotiations, this data was to be in trust for the public. Now the data is for PIs. Should we tell NIMA that we are not interested until it has project utility? Should the Archive take this data? The Archive should have the very best elevation model it can get. SRTM probably isn't the best available. But for parts of the world it may well be the best digital elevation model available. We could have SRTM and a few years down it can be replaced by more current data.

At the first AAC, the Committee recommended that SRTM data be included in the definition of basic data sets. Was it a recommendation that the group wants to make that NSLRSDA "always provide access to the best available digital elevation data set?"

Recommendation: That NSLRSDA should always have the best available global digital elevation model data set, which will be in the public domain, to be made available on a non-discriminative access basis. Recommendation should be tabled until we discuss the data sieve. We need to define what the best available is, leaf-on or leaf-off. We can get into a discussion on how we want to define the "best available" or we can set a standard. The process is very complex but how far do we want to go? This is not a storage problem. The USGS possesses some of the best knowledge and should use the resident experts to define the "best available." Why are we doing this recommendation? John MacDonald and Sam Goward are a subgroup on the recommendation. They will come back with a revision.

EO-1 Mission (John Boyd)

Those interested are NOAA, NASA, and USGS. We can acquire 2 scenes either side of nadir. There is a certain amount of question on whether we will continue with the EO-1 or we will shut it down. Hope that we can go through this fiscal year with NOAA, NASA, and USGS help. There are a small number of scenes that are excluded by agreement and by NOAA/NASA. This is an important experiment in conjunction with Landsat 7. The EO-1 data set is not in NSLRSDA or the USGS long-term archive. There are a lot of data sets that are archived that are not in the NSLRSDA.

AmericaView (Chris Doescher)

AmericaView started in Ohio to get data into the university's hands. They had the available Congressional backing and funding. We are trying to help AmericaView become organized. The goal is to establish State archives within the participating States. Phases in the context of remote sensing: (1) establish consistency, (2) work with States to establish archives, (3) work with researchers, (4) take research out of the university labs. Having someone in the State available fulltime to work with customers. Almost every request needed time data (leaf-on – leaf-off).

We want to create the archive within the States and we are working with the States to manage and maintain their own archive. Once they have purchased the data it is available to any one. The level of data is working toward terrain corrected, if it meets the State's requirements. Could these State's archives be a backup to the Archive? Decisions can be made now to set up standards and procedures to make it a condition for joining the consortium and it will be a backup for NSLRSDA. This could help with the gap between the Federal and State governments.

ACTION: Affiliate subgroup: Bender, Doorn, MacDonald, Faundeen, and Gabrynowicz include AmericaView.

ACTION: Bender will join Dubno and Nelson on the outreach subgroup. Write a paragraph on AmericaView and outreach to the Archive.

Day 2 - Thursday, May 2, 2002

Started with recommendation – Faundeen, Goward, and MacDonald changes.

Recommendation: Recognizing that proper interpretation of remotely sensed observations often requires elevation information, the Committee recommends that NSLRSDA should maintain or facilitate access to the best publically available global, digital elevation model (DEM) data for that purpose.

Consistent with P.L. 102-555 (Sec. 5652), these DEM data will be in the public domain, and shall be made available on a non-discriminatory basis.

Consensus on recommendation was unanimous.

NSLRSDA – it is hard to know what the mission is for the public. As a marketing idea this needs to be revised and a better name created for NSLRSDA. Suggestion is that the Committee advises the powers that be that it should be known informally as the National Imagery Archive and that formally and for budget any reason it can remain NSLRSDA. NSLRSDA is the name that gives USGS the jurisdictional power.

Recommendation: Naming Subgroup: Dubno, Bender, Williams, Frelk, Faundeen, and Holm. The committee is agreed that for the public the official name "National Satellite Land Remote Sensing Data Archive" (also known by the acronym "NSLSDA") is awkward and somewhat confusing. We are proposing that a simpler name be adopted for public use. We tentatively propose calling this the "USGS National Imagery Archive." We are looking for other suggestions prior to our next meeting. (Sadly, we searched on the web and discovered that the "Eros Imagery Archive" was already taken...)

Data Gaps

Landsat's first original distribution was only over the U.S. 50K to 100K scenes out of 800K SPOT scenes are partial images. Can we make up something that involves coverage as well as the economic information that can be released on a regular basis? For Landsat 7 how close do you get? Indication is that people will get used to it. The available information can be used for a lot of different reports.

Recommendation: Faundeen may want to go to one of the meetings that Goward and Feuquay attend. (Attending May 23, 2002 meeting.)

ACTION: Paper on data gaps should be submitted to Photogrammetric Engineering that updates Howard Warriner's paper. Goward and Faundeen will work to get this information pulled together for a manuscript. (Completed)

Recommendation: Visualization of global coverage needs to be available and maintained on the web site at the earliest possible date.

ACTION: Faundeen to identify technical options for making the data available on the web page.

Should there be a subgroup to address the recommendation to fill data gaps in the Archive and access what is being proposed? How does this go with data sieve? The validation group is working on this and has had these arguments and should be a great help to Faundeen. How do we address gaps. Goward and Williams are on the LTAP validation committee. Technical expertise is needed to help Faundeen and we are aware of what LTAP is doing.

ACTION: Data Sieve Subgroup – Goward and/or Williams, Nelson, Doorn and Faundeen will work in parallel with the LTAP validation. (Happening)

Data Sieve

An attempt was made to contact Kass Green – cell phone turned off.

Goward's presentation on data sieve on the dynamics and scope of the question is not complete enough to provide a recommendation.

Basic concern: Too much data. There is a wave affect of data. Real issues: (1) number of geographic matches around the planet, (2) handle on metadata to handle bytes of data. Is this too much data? Don't know what too much data is. Question: If not too much data why have a sieve or you don't have the right kind of data. There is a sieve in place today. How do we decide what will be accepted (and maintained) in the Archive? Data sieve is the front door to the Archive. Backdoor – not being used but is there. Data sieve is first affected by fiscal constraints. Decision was made that USGS would contribute to the SRTM data mission. There are a lot of technical questions. Maintaining manned space flight observations data is a question. Data going into the Archive is required to have metadata. Scientific data uses should include applications. Goward covered only the scientific portion. There are a lot of various factors that go into play when data comes into NSLRSDA. The Committee can provide recommendations.

The Committee should advise through science, technical, and administrative order but NSLRSDA will work it from the fiscal point.

As technology is moving along then we may not need to breakdown the criteria into science, technical, administrative, and fiscal but only on fiscal funds available. Once fiscal funds are available then we need to look at the priorities of what is important, science, technical, etc.

Another discussion is on tiered services. Everything can be saved but not necessarily for access to the data. There is no clear pathway. There are many paths and a lot of solutions.

Goal – Determine minimum requirements for maintaining a long-term global data set.

Subgroup reviewed current sieve approaches and proposed recommended actions. We need to review current sieve attributes, mission and goals of NSLRSDA, other agency criteria, and user requirements in order to draft a white paper.

Do we need a sieve? Yes, one that addresses both the front door and back doors.

NSLRSDA and Data Sieve so far:

1992 Land Remote Sensing Policy Act Section 5652:

(a) public interest
(b) archive practices
(c) determination of content of public data set
(d) public domain

Global Change Research Act of 1990.

(1) Global change research was set aside from the rest of the scientific world.
(2) The oversight science committee has ended and becoming a potential corporate at NOAA.
(3) Committee Definition consistent with Landsat Remote Sensing Policy Act – exclusions

Because of the definition *everything* got through and into the Archive.

Statutory stuff was a basis.

Individual global change has not been defined or qualified.

From the October Meeting:

> IGS Subgroup Meeting (Doorn, Shaw, Holm, Faundeen)
>
> Issue: Do we have critical ground station problems that need to be addressed rapidly? Will we be active enough so we don't loose data? Gaps – where, what are they? Preserving and rescuing the historical Landsat data archive in the U.S. and non-U.S. vs the archiving of new mission data and data transfers from other archives is the challenge.
>
> The most the Committee can do is to give the NSLRSDA "words" for Landsat 7. We have a lot of work to do to fix 27 years of neglect. EDC has limited resources, and a terabyte of data. How much of resources should go to historical vs. new? MSS data was completely captured in the 70's. Get as much TM data as you can. We need more information to make a decision.

Preserve data sets at risk of potential loss. Basis was WBVT. Especially if there is no coverage anywhere else in the world. This bullet related to historical records.

Suggestion is to focus on a *pixel* on the surface of the Earth. Construct over time as much material as possible and as open as you can. Think about new data sets that give the pixel value. Concept was to use the raw data to make the best product you can with that pixel. Doesn't mean you archive the computer pixels but that original data and ancillary data used should be archived. If you look at it from the point of measurements it would get rid of a lot of redundancy. Historically, TM and MSS taken at the same time would be considered different measurements. Getting down to a digital solution. How does this relate to analog? Should look at analog as a possible case. Analog does have a pixel. Will discuss fiscal later and go to scan archival perspectives.

Think about what you are looking at, a planet with particular characteristics. What makes it unique and what are the attributes: (1) water change state (solid, liquid, gas), (2) multiple, carbon-based life forms. System doesn't stay at the same state conditions because (1) rotates on an axis, (2) orbits around the sun. Gives 2 cycles – diurnal and annual. Typical observations (1) short term, (2) daily, (3) within season, (4) seasonal, (5) long term. Annual record – needs to meet several parameters. For the future we have to look at measurement devices.

Another issue is political – need to have an international effort. What is needed operationally? The CEOS Committee is looking at various ways of looking at data. The Archive needs a basis and we need to get the observations available to do the concept. There is no consensus on how and when to capture data. Look at what kinds statistically we want to capture. Take to Congress. Carry out Earth observations of the land.

The Committee can point out where there are problems with jurisdiction.

Recommendation that we might want to do: time artificially of the distinction we are working to. Based on the collection capabilities of the platforms there are specific areas of the globe that have consistent cloud cover. Doesn't it make some sense to use high-resolution data to fill in areas of the world where we don't have cloud free images? Take the statute definitions and apply technical knowledge to see what you can come up with. USGS has the legislative mandate to maintain the satellite data. It should be available by the Archive to take advantage of other data sets to fill gaps. Would like to have the charter opened up to all photography, i.e., aircraft, etc.
Need to look at one piece at a time.

If we approach this problem through the point of view of measure, we will come up with a satellite based definition of archive and we will be able to use that to attack the problem of the other data. Write into a bill. Allow all land based data sets. If we work on this, we are trying to populate a grid that is useful to humanity in the future and we

can go beyond satellite. If we do it right it will become so obvious that we have to include other data. We may not want to do this right now. Maybe don't ask the USGS to do it. Someone else could do it for them. If we do it right, the best way to put together the information that is required will be a slam-dunk. There are other places where photographs can be archived, i.e., aircraft after 40 years goes to NARA. The issue is developing a picture of the Earth over time. Whatever is relevant? Does it have to be in the NSLRSDA or just pointed to by the NSLRSDA?

Lunch Time Issues

1. Is a data sieve needed? (Yes!)
2. Are there data sieve elements missing? (Yes, but it must remain simple to work.)
3. What data sieve aspect takes precedence?
4. How formal should data sieve implementation be?

It is so easy once you get a basis to produce the meta lines.

Science applications – really the issue is that science serves our needs.

Fiscal and Technical Constraints (John Faundeen)

Budget is from the Survey, Investigations and Research (SIR) funds for satellite data management mission and global change. Currently about $1m under what is necessary to do the job even adequately. Budget also takes care of non-NSLRSDA data. $2,824,000 budget – 82% is salaries and ITS. SPOT CCT tapes will not be converted because there is no money for media supplies. FY 2003 will be no better than FY 2002.

Data coming in FY 2003:

1. SRTM
2. Declass II
3. ETM+
4. 120 cities (Home Land Security) could be 3 different sources of data.
5. NC Lidar – will be a deep archive (no access) will be delivered on a hard disk so there will be process time and media involved.

Landsat archive conversion systems (LACS) will allow the use of silos for MSS and TM data. We have chosen a media to be used in the future and Landsat 7 has selected the same media. Declass II will take work to get into the Archive. We do not have a silo so we will try to partner with the people using silos that are in the building. Old data tapes can be thrown away once everything is documented and approved.

Executive Order – February 22, 1995, objective is to make available as much imagery as possible.

Whatever we do with Declass II will affect Declass I and future Declass data. Are we looking at our priorities? Should DeclassII be higher? Yes, it could politically and publically hurt us. NIMA could find the money to take care of this data. Should try a little pushing at NIMA to get funds. What is the right thing for USGS to do? Do we ask for money or try to do what we can and get pounded because we don't get it done. Take a positive approach. "What can we do to make this a really good thing, a better job than last time and it will take more money. Archive should approach NIMA in how to work this together in light of the last time. Don't get bogged down with NIMA. Should go for all agencies. This is what we think should be done and recommend that USGS should go to Secretary Norton, "to USGS management, that unless the following is done for the good of mankind…."

Recommendation: The Committee finds that the USGS has an inadequate budget to carry out its current congressionally mandated responsibility for NSLRSDA (P.L. 102-555, Sec. 5652).

The Committee also finds that additional funding is needed in the immediate future due to increasing data sources and demand for those data.

Therefore the Committee strongly recommends that a 2004 budget initiative be prepared to provide adequate funding to fulfill NSLRSDA's statutory obligations.

Consensus for recommendation is unanimous.

You can't talk about data sets without having data products in mind. We need the key things that are going to be necessary now to be a viable Archive. More than one group needs to come forward on how important the Archive is in order to do their work. USDA may start this document. We need to have standards in order for the data to be useful to the public.

Unenhanced data are numbers proportional in a defined way to the radiance measured by a seasonal viewing a specific surface area. A measure of what existed on the Earth system at a point in time placed geographically and calibrated radiometerically. How do data sets fall into the basic data set? They should have the same requirements. This is a minimum data set requirement that can be added to. The one issue that comes up is that this is cloud free spatial observation. We may not be able to get to the cloud free standard. Maybe we should remove cloud free. As you work on pixels then a whole cluster of pixels must be cloud free. However, if you can have one pixel cloud free than you have a start. You are making measurement of the surface.

ACTION: Evaluate what it takes to have a data base with spatial observation characteristics to track data. (Action not assigned to anyone or group.)

It is restrictive today to have a standard data base but it can be for the future. It has more to do with metadata than the data itself. You are trying to fill a space with information. Sieve becomes how you are filling the space. Is the data relevant that you use to fill the space?

Currently, the best data =
10m SPOT
30m TM
5m IRS
80mm MSS

Priority of the Archive should be to try to find observations that would take care of what you need.

Some of these data have spectral problems; do we want to cover this? What about consistency of data? SPOT, LS, etc. The Archive mission is to use satellite (government, private, etc.) data. The Archive isn't to keep the Landsat 7 program alive. But the U.S. objective is to keep Landsat 7 alive. We could recommend that Landsat data be prioritized. Faundeen will look at existing Landsat data in its spatial context. There is no particular satellite called out. When the statute was written, SPOT was the only game in town. Statute: Section 1, include as appropriate either by the Landsat system or licensee. GEOS might be used for land data soon.

Temporal – says it is changing because it is application dependent. There are a lot of applications where we would like to get 10 to 100 meter daily. There is much of the world that you don't need 10m data of. You can look at 10m data for where you need it. It is really the equivalent of what you do electronically. May be you don't need the best resolution everywhere. Doesn't take into consideration the night mission.

Archive doesn't necessarily have to hold all the data. We just need to know where it is and how to get at it. There is metadata access. Need to go to one place and find it. Archive already has a cross reference for many data sets.

There is a letter of agreement between NOAA/NESDIS and USGS on reciprocal storage.

ACTION: Add John MacDonald as an *email member* of the data sieve subgroup.

We will take the base and try to come up with the words. This will be a starting point to build on as you get other requests. Embed this sieve element (make it the last) into the current sieve, or an ideal goal may lead to budgetary and administrative requirements you may not want to address today but without the information available we will have a hard time arguing with what to decide. Start with what is in the Archive and then find fiscal funds.

Spatial, temporal and informational are 3 dimensional sieves. What about adoptive sieve? The resolution to use depends on the location and temporal information (radiance, infrared, spectral). Can see a data base where what you end up doing is storing data art, various data on time-based and whether or not anything was changed.

We now need to take the input and finish in the subgroup

ACTION: Data Sieve Subgroup: Goward, Shaw, Doorn, Budge (MacDonald via email) try to meet (face-to-face or other) as soon as possible. Subgroup will go over the table and fine tune it and come up with a draft.

Subgroup Report on Human Space Flight (Hugh Bender)

This group did not meet. The accessible nature of the data as it is produced was the charter of the subgroup. The data is heavily used. Gemini, Apollo, Shuttle, Skylab, LFC data. 10,000 frames – masters – are stored at the JSC. Master negative storage – 2 at JSC, 1 at New Mexico, and 1 at the USGS. Point of contact denied the existence of the 4 masters. JSC is very protective of the photography.

The negatives are very heavily used by survey geologists. Gordon Wells, Texas Natural Resource Information System (TNRIS), checked and found they are keeping up with the process of not pulling the masters out of their frozen state but are using the negatives that were distributed. Negatives are old and are considered sub par. Many would like to have them scanned or new copies made. It is accessible to the public. The protected masters are not accessible. Project is getting third generation material. New Mexico and USGS get very little requests for the data. Faundeen has looked at every frame of Gemini and has identified about 100 scenes that we might make into a project.

Conclusion of the group was that we have bigger fish to fry. Can do follow up work.

What you do with the data, what is the life cycle? Because there is no metadata it really isn't appropriate for this Archive and should go to NARA. Could not demonstrate a useful or good application for the data.

Recommendation: Having done research and finding that imagery from the U.S. Human Space Flight program is properly archived at JSC and NARA, it is the recommendation of the Committee that this data at USGS not be ingested into the NSLRSDA. The Committee will periodically monitor.

Retention Life Cycle (RBV)

Focused on Human Space Flight only and will continue.

ACTION: Retention Life Cycle (RBV) group can complete their on-going task.

Affiliated Archives (Brad Doorn and John Faundeen)

The AAC recommendation (as a letter) went through USGS Director Chip Groat to the Associate Director for Geography, Barb Ryan to USDA. USDA didn't just approve it, they requested information on the program. The Committee needs a definition of what an affiliate archive means.

October 1999 – Committee recommended the creation of an archive qualification process for affiliate archives.

We are bridging to a real affiliate archive. Do we go back to the qualification process? The issue is how do we inter-relate with people storing Landsat remote sensing data. This is a good way to look at outreach.

The USDA (archive-library) they need a program and the support of the Archive so that we do it properly. USDA and USGS will be inter-relating. How should we inter-relate with the separate Archive? What type of relationship should there be to promote and encourage other affiliate archives? The setting up of the USDA affiliate archive will be documented and used as a means for setting up other affiliate archive.

USDA uses remote sensing data for economic analysis. They provide the base numbers that go into the trade process and investments. USDA has tied remote sensing data to a Federal economic index. Data is tied to a resource.

USDA needed to cover the U.S. over the growing season (one cloud free scene). Wants to do hard studies on the 8-day coverage.

The affiliate archive subgroup is at the design point. USDA is getting a lot of data and they are responsible for that data so they will be a guinea pig for setting up an affiliate archive. When we define the affiliate archive it will probably have tiers. Brad is working on being a Landsat affiliate archive. Maybe the Committee should watch Doorn and Faundeen and see how they proceed.

USDA archive staffer was at EDC Wednesday to begin the learning process for setting up the archive.

NSLRSDA needs multiple affiliate archives. We have the NOAA NDCD – a reciprocal archive arrangement. AVHRR data sets primarily are with NOAA and USGS has a backup. We have checked on CCRS arrangements for affiliate archive. We are comparing the Landsat TM & MSS overlap that we have with CCRS. So they would become an offsite for Landsat data. Need to document the process. Going through the CCRS process for this may be lengthy (1 to 2 years). This would be a level 0R. CCRS also has other data sets, i.e., SEASAT, that we might reciprocally store at USGS. This has potential for early success. We have the most in common with CCRS.

National Geophysical Data Center – very preliminary discussions. We probably couldn't read their data so we may only be trading space with them. We are waiting for them to contact Faundeen to reinitiate negotiations. NOAA standard is Level 1B.

Day 3 – Friday, May 3, 2002

GES DAAC User Working Group (Amy Budge)

GSFC DAAC has a user group that Amy Budge attended where there was talk about the NSLRSDA. They talked about a lot of things that don't concern this Committee. But they did discuss archiving data sets and higher-level products, i.e., AVHRR, MODIS, etc. They talked about data set addition and deletion policies for short-term archives. They also have a long-term archive (retirement). Consider metrics for evaluating data sets for retirement, number of accesses of data, percentage of collections of accessed, inquiries about the data set, cost of retiring data sets versus cost of maintaining support, and percentage of volume of data sets against the entire holdings. They are involved in the long-term archive planning with NOAA (in the discussion stages). The money may not be available to do this. Data is atmospheric. MODIS are the first data being considered for transfer to this long-term archive. GSFC/DAAC has created five levels of service and they expect the archive to perform at the same level: user services, product support, data availability, data access, and long-term data stewardship. Web site: DAAC.GSFC.NASA.GOV/DAAC_DOCS/UWG

Faundeen went to a NASA archiving meeting in January that covered stewardship. There is another workshop on the NASA long-term archive in June; RJ Thompson and Faundeen are on draft agendas, but have not been asked to attend. (Faundeen has a conflict, regardless.)

EDC DAAC and NSLRSDA

The LPDAAC wants to transfer data to the NSLRSDA and this needs to be addressed. This has been going on for 2 years and the biggest obstacles are with SIR-C data. This is a major resource drain. NASA (ASTER) will be charging for data starting on Monday, May 6, 2002. They may have the authority but they may not have the ability to do it. EDC DAAC may be the only one that can do this. Look into DAAC NSLRSDA issues and relations. DAAC and GSFC user working group – Amy will be involved so she can monitor their activities.

ACTION: Budge and Faundeen to do another report at the next meeting on DAAC, GSFC, and NSLRSDA.

ACTION: Faundeen to report on the NASA SEEDS LTA workshop held June 2002 in San Diego.

Assume that NASA starts to charge for ASTER MODIS data and we move the data to NSLRSDA. When the products go from NASA to NSLRSDA the price raises because of NSLRDA's cost of reproduction. Concern in the USGS is worldwide, as NASA is not dumping on us with the large archive of data that may not be of interest to the general public. Before setting policy we need to look at NARA standards.

We should watch and not get too involved. The EOSDIS has not been very successful. Should strongly resist and the data sieve should be of help.

Need to form with LPDAAC very quickly. Kevin Gallo, NOAA scientist and LPDAAC Science Advisory Panel representative, will let Faundeen know if there is a separate meeting and will inform the Committee to send someone.

Should this Committee make a recommendation to NOAA on the purging of data.

Agenda item: Proposed recommendation regarding expansion of transfer of time for licensees transferring data to NSLRSDA. Require an explanation to the commercial providers to get wording into the licenses.

Multi-Tiered Archive

Comments made to never throw out anything once we have it. Need to look at tiered services model.

Three-Tiered Approach:

1. On line access – best of best.
2. Access within a week – backup files
3. 2 to 4 week access – cold storage

This allows you to concentrate on the resources that are really used. This is the back door in terms of getting data sets out of the main line archive. Once something goes into cold storage it will become obsolete and discarded.

Would continue to upgrade media (up to a point). All of this is covered in the standards for NARA. These levels of storage are already available and established.

Agenda item: Faundeen to look at NARA standards and what they cover and report back at next meeting.

Faundeen is working with NARA staff with discussions on multi levels. Doing policy review to bring the archive in along with NARA standards. How do we go about future work on this? Faundeen can report back at the next meeting on the NARA standards and how the Archive compares.

NASA has a press release out on photography with a special resolution of less than 6m taken from the Shuttle. We need to keep an eye on what is done for the Shuttle guys because it will be getting the attention of the press.

We need to start focusing on coverage that is out of our area. Faundeen has gone to a coastal and surveying conference.

DART – NASA V0, NALC, and other data sets. A lot of money went into some of the data sets but they can be produced on demand but very expensively. This is John's internal team that helps with potential USGS data sets to archive. DART is another asset for the USGS to work with.

Archive Advisory Committee and the Future (Thomas Holm)

This Committee, from the first 2 years' work products, has the highest visibility in the USGS. Barb Ryan feels that the USGS as a whole needs advice. All of the Committee advice is for NSLRSDA with science, technology, administrative, and fiscal constraints. It is difficult to take advice because we have to take it in context with where we sit in the USGS. This summer we have to re-charter this group. We will have to turn in something to the DOI in June. Should we broaden the scope to be all archives including aerial? May want to be focused on more than satellite data. For the NSLRSDA to be useful we may have to incorporate all of the USGS data. There may be a real benefit no matter what the data set is if they compliment each other. Need to do what is most beneficial for the public. Will we loose focus if our area is broadened? We are only now beginning to know the impact of the AAC group. We can make better public awareness, budgets, etc. to more partitioned data. Because of the budget climate, a series of budget initiatives will be brought up and will have to be handled. Based on the recommendation from yesterday on the fiscal constraints of the Archive, we might want to look at tying the recommendation to what will be going forward for *The National Map*. *The National Map* will not be successful without the NSLRSDA. The recommendation needs to mention *The National Map* so it will be only one of many initiatives submitted. If AAC feels confident with the recommendation tell anyone you know to help promote this recommendation. Information should go to the office of the Secretary of the Interior as a courtesy. This group needs to get a news release out on the findings of the group and that one concern is that the NSLRSDA may be on the verge of loosing irreplaceable data. This group can make use of the media.

If what we are being asked to do is go from an advisory to a lobbying Committee we would need to discuss. We are an international power and we should not narrow our focus. We shouldn't be supporting only U.S. Take more than just *The National Map*.

Revised Recommendation:

Recognizing that the NSLRSDA has significant benefit to the National Map and other global remote sensing needs, the Committee finds that the USGS has an inadequate budget to carry out its current Congressionally mandated responsibility for NSLRSDA (P.L. 102-555, Sec. 5652).

The Committee also finds that additional funding is needed in the immediate future due to increasing data sources and demand for those data.

Therefore the Committee strongly recommends that a 2004 budget initiative be prepared to provide adequate funding to fulfill NSLRSDA's statutory obligations.

Revised recommendation approved by consensus Withdraw first recommendation – approved.

ACTION: AAC should brief USGS Director and the Office of the Secretary of DOI. Sam Goward and Joanne Gabrynowicz should conduct the briefing before the end of the charter. Perhaps this can be done during the time of the October AAC meeting.

Agenda item: (The was the orphan recommendation that is to become an agenda item for the next meeting.) The AAC recommends that the Archive move expeditiously to a zero price policy for its basic data set (which by definition is at least 3 years old).

Action Items from May Meeting

ACTION: Dan Dubno, Jerry Nelson, and Amy Budge will draft a paragraph "this kind of outreach can be engaged in." First need to define the kind of outreach. Question what USGS does as a whole to get to a Land Remote Sensing paper. Need to define the target. Talk about a marketing company for outreach. Need to consider libraries.

ACTION: We have the outreach document that was submitted. A paragraph from each member should be emailed to Jerry and Dan. When we leave this meeting we can get a subgroup to work up more. Whatever is recommended should become a budget initiative for FY 2004.

ACTION: Affiliate subgroup: Bender, Doorn, MacDonald, Faundeen, and Gabrynowicz include AmericaView.

ACTION: Bender will join Dubno and Nelson on the outreach subgroup. Write a paragraph on AmericaView and outreach to the Archive.

ACTION: Paper on data gaps should be submitted to Photogrammetric Engineering that updates Warriner's paper. Goward and Faundeen will work to get this information pulled together for a manuscript.

ACTION: Faundeen to identify technical options for making the data available on the web page.

ACTION: John to identify and document options for making the visualization data available on the web page. (NOTE: This was originally a recommendation to establish a subgroup with Crowsey, Doorn, and Faundeen.)

ACTION: Data Sieve Subgroup – Goward and/or Williams, Nelson, Doorn and Faundeen will work in parallel with the LTAP validation.

ACTION: Evaluate what it takes to have a data base with spatial observation characteristics to track data.

ACTION: Add John MacDonald as an email member of the data sieve subgroup.

ACTION: Data Sieve Subgroup: Goward, Shaw, Doorn, Budge (MacDonald via email) try to meet as soon as possible. Subgroup will go over the table and fine tune it and come up with a draft.

ACTION: Retention Life Cycle (RBV) group can complete their on going task.

ACTION: Budge and Faundeen to do another report at the next meeting on DAAC, GSFC, and NSLRSDA.

ACTION: Faundeen to report on the NASA SEEDS LTA workshop HELD June 2002 in San Diego.

ACTION: AAC should brief USGS Director and the Office of the Secretary of DOI. Sam Goward and Joanne Gabrynowicz should conduct the briefing before the end of the charter. Perhaps this can be done during the time of the October AAC meeting.

Recommendations from May Meeting

Recommendation: That NSLRSDA should always have the best available global digital elevation model data set, which will be in the public domain, to be made available on a non-discriminative access basis. Recommendation should be tabled until we discuss the data sieve. We need to define what the best available is, leaf-on or leaf-off. "Best available" includes a note.

Recommendation: Recognizing that proper interpretation of remotely sensed observations often requires elevation information, the Committee recommends that NSLRSDA should maintain or facilitate access to the best publically available global, digital elevation model (DEM) data for that purpose.

Consistent with P.L. 102-555 (Sec. 5652), these DEM data will be in the public domain, and shall be made available on a non-discriminatory basis.

Recommendation: Naming Subgroup: Dubno, Bender, Williams, Frelk, Faundeen, and Holm. The committee is agreed that for the public the official name "National Satellite Land Remote Sensing Data Archive" (also known by the acronym "NSLSDA") is awkward and somewhat confusing. We are proposing that a simpler name be adopted for public use. We tentatively propose calling this the "USGS National Imagery Archive." We are looking for other suggestions prior to our next meeting. (Sadly, we searched on the web and discovered that the "Eros Imagery Archive" was already taken...)

Recommendation: Faundeen may want to go to one of the meetings that Goward and Feuquay attend. (Attending May 23, 2002 meeting.)

Recommendation: The Committee finds that the USGS has an inadequate budget to carry out its current congressionally mandated responsibility for NSLRSDA (P.L. 102-555, Sec. 5652).

The Committee also finds that additional funding is needed in the immediate future due to increasing data sources and demand for those data.

Therefore the Committee strongly recommends that a 2004 budget initiative be prepared to provide adequate funding to fulfill NSLRSDA's statutory obligations.

Recommendation: Having done research and finding that imagery from the USHSF program is properly archived at JSC and NARA, it is the recommendation of the Committee that this data at USGS not be ingested into the NSLRSDA. The Committee will periodically monitor.

Revised Recommendation:

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Therefore the Committee strongly recommends that a 2004 budget initiative be prepared to provide adequate funding to fulfill NSLRSDA's statutory obligations.

Agenda Items from May Meeting for October Meeting

Agenda item: Proposed recommendation regarding expansion of transfer of time for licensees transferring data to NSLRSDA. Require an explanation to the commercial providers to get wording into the licenses.

Agenda item: Faundeen to look at NARA standards and what they cover and report back at next meeting.

Agenda item: (The was the orphan recommendation that is to become an agenda item for the next meeting.) The AAC recommends that the Archive move expeditiously to a zero price policy for its basic data set (which by definition is at least 3 years old).